

TISHKOV, B.N., fel'dsher (selo Malinovka, Stalingradskaya oblast')

Intravenous injections with a detached needle. Fel'd. i aknsh.  
no.6:51-53 Je '54. (MLRA 7:7)

(INJECTIONS

\*intravenous, with detached needle)

AUTHOR: Tishkov, I.A., Candidate of Historical Sciences 3-58-5-8/35

TITLE: More Initiative in the Methodical Work of the Chairs of Social Sciences (Bol'she initsiativy v metodicheskoy rabote kafedr obshchestvennykh nauk)

PERIODICAL: Vestnik Vysshey Shkoly, 1958, Nr 5, pp 33 - 37 (USSR)

ABSTRACT: The development of the Soviet higher school during the last years is characterised by a marked growth of the systems of part-time tuition, especially that of instruction by correspondence. Therefore, the questions of work method with correspondence students is increasingly occupying the minds of the vuz workers, in this article concentrating on the social sciences, i.e. primarily of the Marx-Lenin theory, the Communist Party history, etc. It is necessary to improve the present forms of work in correspondence. The Vsesoyuznyy zaochnyy ekonomicheskiy institut (All-Union Economic Correspondence Institute) and the Severo-zapadnyy politekhnicheskiy institut (North-West Polytechnical Correspondence Institute) have introduced the cyclic system. The Vsesoyuznyy zaochnyy mashinostroitel'nyy institut (All-Union Machine Construction Correspondence Institute)

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3-58-5-8/35

More Initiative in the Methodical work of the Chairs of Social Sciences

and the Vsesoyuznyy zaochnyy institut sovetskoy torgovli (All-Union Correspondence Institute of Soviet Trade) are mentioned as having obtained considerable experience on questions of method. The Chair of Marxism-Leninism of the Vsesoyuznyy zaochnyy institut inzhenerov zheleznodorozhnogo transporta (All-Union Correspondence Institute of Railroad Engineers) is severely criticized.

ASSOCIATION: Ministerstvo vysshego obrazovaniya SSSR (USSR Ministry of Higher Education)

AVAILABLE: Library of Congress

Card 2/2

*/ 15-11-57, 11. 11.*  
AUTHOR: Tishkov, I.A., Candidate of Historical Sciences 3-8-3/34

TITLE: Instructive Results (Pouchitel'nyye rezul'taty)

PERIODICAL: Vestnik Vyshey Shkoly, 1957, # 8, pp 15-18 (USSR)

ABSTRACT: The author tells why the Chair for the History of the KPSS and Dialectical and Historical Materialism, of the Voronezh Agricultural Institute (Voronezhskiy sel'skokhozyaystvennyy institut) has been cited as an example for other chairs in Social Science.

He mentions the names of the instructors M. K. Meshcherina, P. T. Khudyakov, D. S. Novokshchenov, who have either already obtained their degrees or prepared their theses. V.I.Smironova has prepared her thesis for obtaining a candidate's degree, while P. Ye. Pavlenko, T.K. Teplyakov and A. V. Losev are conducting the necessary degree research work. The instructors V. I. Chekalin, V.T.Ivankov and Yu.I.Padalkin are also occupied with such research. Dotsent M.K. Teplyakov, in charge of the Chair, is an able leader.

The author also quotes a few deficiencies noted in the delivery of lectures and in the seminar work on dialectical and historical materialism. The USSR Board of the Ministry

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Instructive Results

3-8-3/34

of Higher Education has approved the Chair's activity.

ASSOCIATION: Upravleniye prepodavaniya obshchestvennykh nauk  
(Social Science Teaching Administration)

AVAILABLE: Library of Congress

Card 2/2

FISHKOV, Il'ya Alekseyevich; SKROV, I.D., red.; ZAKHARIKOV, A.N.,  
red.izd-va; MURASHOVA, V.A., tekhn.red.

[Postwar struggle of the Communist Party for the restoration  
and development of the socialist national economy, 1945-1953]  
Bor'ba Kommunisticheskoi partii za vosstanovlenie i razvitie  
sotsialisticheskogo narodnogo khoziaistva v poslevoennyi  
period, 1945-1953 gody; materialy k lektsiyam po kursu "Istoriia  
KPSS." Moskva, Gos.izd-vo "Vysshiaia shkola," 1960. 121 p.

(MIRA 14:12)

(Communist Party of the Soviet Union)  
(Russia--Economic conditions)

TISHKOV, Kharalampi  
SURNAME (in caps); Given Names

Country: Bulgaria

Academic Degrees: not indicated

Affiliation: Junior Scientific Collaborator, member of the staff of  
Geografiya, Editor: Tyanko YORDANOV

Source: Sofia, Geografiya, No 1, 1961, pp 20-22 and p 24

Data: "The Present and Future of Weather Forecasts." (pp 20-22)

"Dimitur Y. Dimitrov's Book The Weather in Bulgaria,  
Published by Science and Art (Nauka i Izhustvo) State  
Publishers, Sofia, 1960, 152 Pages " (p 24)

TISHKOV, Kharalampi S., n. sutr.

Why the ice is formed in the Bratsa Ledenika Cave.  
Priroda Bulg 12 no. 4: 87-90 J1-Ag '63.

1. Geografski institut na Bulgarskata akademija na naukite.



TISHKOV, Kh.

On certain peculiarities of the Mediterranean climatic influence  
in the Strandzha region. Izv Geog inst BAN 6:133-156 '62.

TISHKOV, Kh.

Formation and spreading of humid tropical weather in eastern  
Bulgaria. Khidor i meteorolog 13 no.6:22-32 '64.

TISHKOV, Khar. S., n. sutr.

Thirty years of meteorologic observations over the Musala  
Massif. Priroda Bulg 11 no. 6:104-107, 112 N-D '63.

1. Geografski i-t pri Bulgarskata akademiia na naukite.

TISHKOV, Kh. S.

Certain new moments in applying the P. P. Fedorov and  
L. A. Chubukov complex method. Khidro i meteorolog 13  
no. 1:31-37 '64.

TISHKOV, L.B., inzh.

Selecting the rated instances of the rolling down of cuts on  
classification humps. Vest. TSNII MPS 25 no.1:46-49 '66.  
(MIRA 19:2)

SADIKOV, P.P.; ANAN'YEVA, S.A.; LEBEDEVA, T.P.; SMIRNOV, Ye.K.; PRIGOROVSKIY,  
V.F., inzh., red.; TISHKOV, L.B.; KATOLICHENKO, V.A.; PAMIN, A.V.;  
NOSKOV, Yu.A.; TRIFONOVA, M.G.; KLEYMENOV, Ye.I.; BOBROVA, Ye.N.,  
tekhn. red. . .

[Technical equipment for large general-purpose freight yards]  
Tekhnicheskoe osnashchenie krupnykh gruzovykh stantsii obshchego  
pol'zovaniia. Moskva, Gos.transp.zhel-dor izd-vo. 1958. 186 p.  
(Moscow. Moskovskii institut inzhenerov zheleznodorozhnogo  
transporta. Trudy, no.161) (MIRA 12:2)  
(Railroads--Yards--Equipment and supplies)

SADIKOV, P.P.; LEBEDEVA, T.P.; KORSH, V.B.; BELENOV, V.K.; PETRUNENKOV, A.Ye.;  
~~TISHKOV, L.B.~~; ASHIKHMIN, A.K., inzh. retsenzent; PREDE, V.Yu.,  
inzh., red.; VOROTNIKOVA, L.F., tekhn.red.

[Technological equipment of railroad stations] Tekhnicheskoe  
osnashchenie stantsii. Moskva, Transzheldorizdat, 1963.  
153 p.

(MIRA 16:6)

(Railroads--Stations)

(Railroads--Equipment and supplies)

TISHKOV, L.B., inzh.

Speed of uncoupled cars at the points of "aiming" and "spacing"  
on the classification tracks of automated hump yards. Vest.TSHII  
MPS 22 no.5:12-17 '63. (MIRA 16:8)  
(Railroads—Hump yards) (Automation)



LEBEDEVA, T.P.; STRAKOVSKIY, I.I.; TISHKOV, L.B.; LOMAKINA, N.N.;  
ZABELLO, M.L.; SADIKOV, P.P.; PETRUNENKOV, A.Ye.; BELENOV, V.K.;  
ARUTYUNOV, V.A., inzh., retsenzent; PETROVA, V.L., inzh., red.;  
BOBROVA, Ye.N., tekhn.red.

[Basic requirements related to the technical equipment of  
classification yards] Osnovnye trebovaniia k tekhnicheskomu  
osnashcheniiu sortirovochnykh stantsii. Moskva, Transzheldorizdat,  
1963. 218 p. (Its TRUDY, no.270). (MIRA 17:3)

PUSLOVOYTOV, L.P., kadm. tekhn. nauk, STANOVNIK, L.P., kadm. tekhn. nauk,  
TISHEV, L.P., kadm. nauk.

Overall mechanization and automation of car loading and unloading  
humps. Zvel. der. transp. AG no. 12-20-14-146. (M.P. 12-20-14-146)

KURNOSOV, A. inzhener; TISHKOV, P. inzhener

Wider use of metallic supports. Mast. ugl. 4 no.1:15-16 Ja '55.  
(Mine timbering) (MLRA 8:6)

KURNOSOV, A., inzhener; TISHKOV, P., inzhener

SKR-11 conveyor intermediary tension roller. Mast. ugl. 4 no. 9:  
14-15 S'55.

(MLRA9:1)

(Conveying machinery)

KURNOSOV, A. inzhener; TISHKOV, P. inzhener

An important condition for achieving the planned capacity of a  
mine. Mast. ugl. 4 no. 4:5-6 Ap '55. (MLRA 8:6)  
(Zolotoye, Voroshilovgrad Province--Coal mines and mining)

TISHKOV, P., inzhener

Footstep bearing for water discharge pipes installed in boreholes.  
Mast. ugl. 4 no. 7:18 J1 '55. (MIRA 8:10)  
(Mine drainage)

KRAVCHENKO, V.I., kand.tekhn.nauk; TISHKOV, P.A., gornyy inzh.

Maintenance costs and the distribution of lateral drifts. Ugol'  
Ukr. 4 no.12:33 D '60. (MIRA 13:12)  
(Coal mines and mining--Costs)

TISHKOV, Petr Alekseyevich; KURNOSOV, Anatoliy Mikhaylovich; KIRIYENKO, O.,  
redaktor; VOYAK, M., tekhnicheskiiy redaktor

[Use of new types of mine supports] Primenenie novykh vidov krepí.  
Kiev, Gos.izd-vo tekhn. lit-ry USSR, 1955. 38 p. (MLBA 9:2)  
(Mine timbering)



KURNOSOV, A.M.; TISHKOV, P.A.

Water outbreak from sandstones occurring in the soil of coal seams in the "Pervomaiskaia" mine. Ugol' 29 no.4:38-40 Ap '54.  
(MLRA 7:2)

1. Institut gornogo dela Akademii nauk SSSR (for Kurnosov).
2. Trest Pervomayskugol' (for Tishkov).  
(Voroshilovgrad--Coal mines and mining) (Coal mines and mining--  
(Voroshilovgrad) (Water, Underground)

AUTHOR TISHKOV P.G. PA - 2992  
 TITLE The Second Relaxation in a Spin System at Room Temperatures.  
 (Vtoraya relaksatsiya v spin-sisteme pri komnatnykh temperaturakh,  
 Russian.)  
 PERIODICAL Zhurnal Eksperim. i Teoret. Fiziki 1957, Vol 32, Nr 3,  
 pp 620 - 621 (USSR).  
 Received: 6/1957 Reviewed: 6/1957  
 ABSTRACT The Investigation of paramagnetic absorption in  $\text{Cr}(\text{NO}_3)_3 \cdot 9\text{H}_2\text{O}$   
 in parallel fields at  $300^\circ \text{K}$  by means of the method of the  
 lattice current led to the discovery of a phenomenon on which is  
 unusual for room temperatures. The absorption curve  $\chi''(H_{\parallel})$ ,  
 which is shown in a diagram for the frequency  $\gamma = 160$  mega-  
 cycles of the oscillating field, has a very narrow maximum. The  
 right half width of the curve is of the order of 300  $\text{Oersted}$ .  
 With increasing  $\gamma$  the maximum of absorption shifts towards the  
 direction of the greater field strength of the constant magnetic  
 field:

$\gamma$ in megacycles	48	93	131	160
magnetic field strength ( $\text{Oersted}$ )	250	290	330	360
in maximum				

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PA - 2992

The Second Relaxation in a Spin System at Room Temperatures.

The intensity of the maximum absorption (in comparison to the absorption at field strength  $H_0$ ) decreases in the investigated interval of from 10 to 160 megacycles with increasing frequency. At frequencies of the order of 600 megacycles the shape of the curve of paramagnetic resonance differs only from the ordinary curve  $\chi''(H_{||})$ , which is described by the formula  $\chi'' = (1 - F)^2 \rho_s \nu$  developed by SHAPOSHNIKOV.

The phenomenon discovered is apparently connected with a new form of a spin-spin relaxation, which was discovered by GORTER and DE VRIJER in chromium-potassium quartzes at temperatures of liquid hydrogen.

GORTER and his collaborators then discovered this relaxation also in a number of other substances, but only, as was found in the case of the first experiments, at very low temperatures. At room temperature, as far as the author knows, this effect has up to now not been observed.

CARD 2/3

PA - 2992

The Second Relaxation in a Spin System at Room Temperatures.

By means of the lattice current method the author is at present carrying out analogous investigations with other chromium salts and also with the salts on  $Mn^{++}$ ,  $Cu^{++}$  and  $Fe^{++}$ .  
(No illustrations.)

ASSOCIATION: Physical-Technical Institute of the KAZAN' Branch of the Academy of Science of the USSR.

PRESENTED BY: -

SUBMITTED: 11. 12. 1956.

AVAILABLE: Library of Congress.

CARD 3/3

24(3)

AUTHOR:

Tishkov, P. G.

SOV/56-36-5-1/76

TITLE:

Measurement of the Spin-Lattice Relaxation Time  
in Some  $Mn^{++}$ -Salt Solutions (Izmereniye vremeni  
spin-reshetchnoy relaksatsii v nekotorykh rastvorakh  
soley  $Mn^{++}$ )

PERIODICAL:

Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 36,  
Nr 5, pp 1337-1341 (USSR)

ABSTRACT:

The author of the present paper gives a report on experimental investigations he carried out of the spin-lattice relaxation time  $T_1$  by means of measurements of the quality factor  $Q$  of the coil of a resonance vibration circuit. Determination was carried out by measurement of the absorption coefficient  $\chi''$  and using the formula  $\Delta E = -4\pi\eta\chi''EQ$ , where  $E$  denotes the voltage generated on the resonance circuit. Determination of relaxation time was carried out by means of the Q-meter of the type KV-1. Two methods are, in principle, possible:  
1)  $\chi''$ -measurement in the broad frequency range and construction of the  $\chi''(\nu)$ -curve; 2)  $\chi''$ -measurement at 2

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Measurement of the Spin-Lattice Relaxation Time  
in Some  $Mn^{++}$ -Salt Solutions

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frequencies and computation of  $\rho_L$  according to the formula developed by Casimir and Du Pret  $\chi'' = \chi_0 F \rho_L \nu / (1 + \rho_L^2 \nu^2)$ ,  $F = H^2 / (b/c + H^2)$ ;  $b/c$  is a constant characterizing the internal magnetic field in the paramagnetics. Experiments were carried out on  $Mn(NH_4)_2(SO_4)_2 \cdot 6H_2O$  at the frequencies of 1; 1.5; 2 and 3 Megacycles, and on  $MnCl_2 \cdot 4H_2O$  at 3.5; 5.25; 7 and 10 Megacycles. In glycerin solutions of the latter salt work was carried out at 12, 21.5, 32 and 43 Megacycles at the molar concentrations of 3.9, 1.8, 0.9, 0.45 and 0.225 Mol/l. Results:

1200	1600	200	2400	2800	3200	3600	$H [Oe]$
1.1	1.45	1.7	2.1	2.45	2.7	3.1	$\rho_L \cdot 10^8$
1.4	1.7	1.95	2.3	2.7	2.9	3.15	
1.4	1.65	1.85	2.15	2.5	2.75	3.05	

Figure 1 shows the dependence of  $\rho_L$  on field strength within the range of between 800 and 3200 oe at various

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Measurement of the Spin-Lattice Relaxation Time  
in Some  $Mn^{++}$ -Salt Solutions

SOV/56-36-5-1/76

concentrations in form of a diagram. A family of nearly monotonously rising curves is obtained, which are near to one another especially within the range of low field strengths, i. e. the concentration of the paramagnetic salt exercises but little influence upon the spin-lattice relaxation times. Results:

Curve	Molar Concentration	b/c	$\rho_0$	P
1	3.9	$2.5 \cdot 10^6$	$0.88 \cdot 10^{-8}$	0.147
2	1.8	$2.4 \cdot 10^6$	$0.95 \cdot 10^{-8}$	0.15
3	0.9	$2.27 \cdot 10^6$	$1.14 \cdot 10^{-8}$	0.155
4	0.45	$2.1 \cdot 10^6$	$1.5 \cdot 10^{-8}$	0.17

The following holds according to Brons - Van Vlook:

$$\rho_L = \rho_0 \frac{b/c + H^2}{b/c + pH^2}$$

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Measurement of the Spin-Lattice Relaxation Time  
in Some  $Mn^{++}$ -Salt Solutions

SOV/56-36-5-1/76

Measuring results are in good agreement with this formula, as well as the Casimir-du Pret theory, if the spin-spin absorption is taken into account. The author finally thanks B. M. Kozyrev for supervising work and for his help, and he also thanks V. I. Avvakumov for taking part in the discussions. The applicability of the Q-meter for the purpose of such investigations was first pointed out by Yu. Ya. Shamonin. There are 1 figure, 1 table, and 11 references, 8 of which are Soviet.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk (Physico-Technical Institute of the Kazan' Branch of the Academy of Sciences)

SUBMITTED: July 2, 1958

Card 4/4



I I S H K O V, V. G.

24.2110, 24.2200, 24.7900,  
16.8100, 5(4)

76969  
SOV/56-37-6-9/55

AUTHORS: Avvakumov, V. I., Garif'yanov, N. S., Kazyrev, B. M.,  
Tishkov, P. G.

TITLE: Paramagnetic Resonance and Paramagnetic Relaxation in  
Electrolyte Solutions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki,  
1959, Vol 37, Nr 6, pp 1564-1569 (USSR)

ABSTRACT: Measurements were made of the paramagnetic resonance  
and paramagnetic relaxation in aqueous solutions of  
 $MnO_3$ ,  $MnCl_2$ ,  $Cr(NO_3)_3$ , and  $Cu(NO_3)_2$ . An analysis of the  
experimental results showed that the complex  $Cu^{2+}Y_6$  has  
a structure of bipyramid stretched in the direction of  
one of the symmetry axes of the fourth order (cf.  
V. I. Avvakumov, Zhur. eksp. i teoret. fiz., 37, 1017,  
1959). This effect for the hexahydrate complex in liquid  
solutions is dynamic in nature (cf. B. M. Kozyrev,  
Faraday Soc. Discussions, 19, 135, 1955). This means that

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Paramagnetic Resonance and Paramagnetic  
Relaxation in Electrolyte Solutions

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SOV/56-37-6-9/55

In a given position of the ligand along the axes in a rectangular system of coordinates, the bipyramidal complex can be stretched in the direction of any three coordinates of the axes. All states in this case are energetically identical. In order to pass from one state into another, the system must overcome a potential barrier, which for the hexahydrate complex

$\sim 1000 \text{ cm}^{-1}$ . It was calculated that the transfer proceeds at a frequency of  $\sim 10^{11} \text{ sec}^{-1}$ . At the same frequency the returning of the electron density of the magnetic ion also takes place. This leads to an averaging of the g-factor. The electric field of the violet modification of the salt  $[\text{Cr}(\text{H}_2\text{O})_6]^{3+}$  has

in the main a cubic symmetry which, because of the effect of the particles of the second coordinational medium, contains an admixture of the fields of lower symmetry. The fluctuation of the fields caused by these particles is sufficiently slow. The existence of such fields was confirmed by comparing the observed

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Paramagnetic Resonance and Paramagnetic  
Relaxation in Electrolyte Solutions

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width of lines in solutions with the period of the spin-lattice relaxation for 0.1 M solutions of  $\text{Cr}^{3+}$  ( $\Delta H = 200 \text{ G}$ ,  $\rho_1 \sim 10^{-8} \text{ sec}$ ). These fields are weaker than the axial fields in solid chromium alum, because the total spectral width in powdered alum is considerably wider than the width of a single line observed in solutions. In the green modification of  $\text{Cr}^{3+}$  salts, the paramagnetic resonance line is still wider because the complex  $[\text{Cr}(\text{H}_2\text{O})_4\text{X}_2]^+$  is less symmetrical. The magnetic complexes of  $\text{Mn}^{2+}$  in diluted solutions have nearly a pure cubic symmetry, whereas in nonaqueous  $\text{MnCl}_2$  solutions there were observed very wide resonance lines at a given relaxation period. This was explained by the presence of a strong axial component of the crystal field, which is caused by the presence of ionic molecules of the type  $\text{X}^- - \text{Mn} - \text{X}^-$ . The experimental values  $\rho_1$  for a given magnitude of  $\text{H}_0$  in the case of  $\text{Mn}(\text{NO}_3)_2$  gradually increased upon dilution:

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Paramagnetic Resonance and Paramagnetic  
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approximately 50-60% with a change in the concentration by several moles up to 0.25 M. The anion had a small effect on the magnitude of this phenomenon. These data accord with the theory of S. A. Al'tshuler and K. A. Valiev (cf. Zhur. eksp. i teoret. fiz., 35, 974, 1958). The text contains a diagram of the setup; 4 graphs; and 14 references, 10 Soviet, 1 Dutch, 1 U.K., 2 U.S. The U.K. and U.S. references are: (1) U. Opik, M. H. L. Pryce, Proc. Roy. Soc., A238, 425, 1957; (2) B. R. McGarvey, J. Phys. Chem., 61, 1232, 1957; (3) H. J. Mc Connell, J. Chem. Phys., 25, 709, 1956.

ASSOCIATION: Phys.-Tech. Inst. of the Kazan Branch of Acad.  
Sciences USSR (Fiziko-tehnicheskiy institut kazanskogo  
filiala Akademii nauk SSSR)

SUBMITTED: July 6, 1959

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Tishkov, P.G.

24.2200

82009  
S/056/60/038/02/04/061  
B006/B011

AUTHORS: Tishkov, P. G., Vishnevskaya, G. P.

TITLE: Paramagnetic Relaxation in Manganese Salt Solutions

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960,  
Vol. 38, No. 2, pp. 335 - 340

TEXT: The authors measured the paramagnetic absorption in parallel and perpendicular fields in aqueous manganese salt solutions at concentrations of 0.25 mole/liter and more. In the paper under review, they report on the method applied and results obtained. Measurements were made with a Q-meter described in a previous paper (Ref. 1). It had already been shown there that the spin - lattice relaxation time  $\tau_L$  and the constant  $b/c$  in liquid electrolyte solutions can be determined with a Q-meter by measuring  $\chi''$  at two frequencies, in which case it is necessary to effect a correction for spin - spin absorption according to I. G. Shaposhnikov (Ref. 3). For this purpose, the absorption in zero fields is measured and compared with that in perpendicular fields; it

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Paramagnetic Relaxation in Manganese Salt Solutions

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B006/B011

is furthermore assumed that the spin - spin absorption in fields  $\approx 1,500$  oe be negligibly small. Measurements were made at frequencies of 12, 21, 32, and 42 Mc/sec. All frequency combinations were used for the determination of  $\rho_L$ , except 32 with 42 Mc/sec, as these are much too similar. The calculated mean values of  $\rho_L$  for  $MnSO_4$  (1 mole/liter,  $22^\circ C$ ) are given in Table 1 (in the dimension  $10^{-8}$  sec) for 7 field strength values between 1,200 and 3,600 oe. The values are between  $1.18 \pm 0.14$  and  $1.93 \pm 0.05$ . The deviation of the values from the mean value is  $\pm 6\%$ . The values of  $b/c$  for  $MnSO_4$  solution (3.2 moles/liter,  $22^\circ C$ ) are given in Table 2:  $b/c$  lies on an average at  $(2.48 \pm 0.18) \cdot 10^{-6}$ , the deviation of the values from the mean value amounts to  $\sim \pm 10\%$ . This is illustrated by Fig. 1 which shows the curves  $\chi''(H)$  in  $MnSO_4$  (3.2 moles/liter,  $300^\circ K$ ) at all of the four frequencies. The experimental  $\rho_L$  values of aqueous solutions of  $Mn(NO_3)_2$ ,  $MnSO_4$ , and  $MnCl_2$  are with  $10^{-8}$  sec of the same order as with solid

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Paramagnetic Relaxation in Manganese Salt  
Solutions

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B006/B011

substances. The function  $\rho_L(H)$  is well reproduced by the formula by Brons-Van Vleck, as is shown in Fig. 2 by a comparison between experimental and theoretical curves for manganese nitrate, -sulfate, and -chloride solution (2 moles/liter). Fig. 3 illustrates the dependence of  $\rho_L$  on the type of anion and the concentration N, of  $Mn^{++}$  ions in aqueous solutions of these salts.  $\rho_L$  is found to grow with increasing dilution, especially in manganese chloride solutions. At low concentrations the difference of the  $\rho_L$  values of the three solutions decreases.

The rules observed are explained by the theory formulated by S. A. Al'tshuler and K. A. Valiyev (Ref. 7), in the same way as the temperature dependence of  $\rho_L$ , which was experimentally investigated in manganese nitrate solution (2 moles/liter) at -2, +22, and +58°C. Moreover, the dependence of the internal field constants b/c on the type of anion and on N was also investigated. It was found (Fig. 4) that b/c rises practically linearly with N, the fastest in the case of chloride, the slowest with nitrate. Fig. 4 illustrates, for  $MnCl_2$ , the concentra-

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Paramagnetic Relaxation in Manganese Salt Solutions

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B006/B011

tion dependence of  $\Delta H$ ,  $\rho_L$  and  $\rho_S$  (spin-spin relaxation time). The paramagnetic resonance absorption line width  $\Delta H$  and the relaxation times  $L$  and  $S$  are linked by the relation  $\Delta H \approx 1/\rho_S + 1/\rho_L$ . It follows from the results obtained that the investigation of  $\rho_L$  in electrolyte solutions permits the determination of the structure of such solutions. The authors finally thank B. M. Kozyrev for guidance and assistance given, as well as B. K. Silant'yeva for having taken part in the experiments. A. I. Rivkind is mentioned. There are 5 figures, 2 tables, and 12 references: 9 Soviet, 1 American, 1 German, and 1 French.

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR (Institute of Physics and Technology of the Kazan' Branch of the Academy of Sciences, USSR)

SUBMITTED: July 6, 1959

Card 4/4



TISHKOV, P. G., CAND PHYS-MATH SCI, "PARAMAGNETIC RELAXATION IN LIQUID SOLUTIONS OF SALTS OF ~~THE~~ IRON GROUP ELEMENTS." [KAZAN'], 1961. (MIN OF HIGHER AND SEC SPEC ED RSFSR. KAZAN' ORDER OF LABOR RED BANNER STATE UNIV IMENI V. I. UL'YANOV-LENIN). (KL-DV, 11-61, 209).

VISHNEVSKAYA, G.P.; TISHKOV, P.G.

Paramagnetic relaxation in vanadyl sulfate and its solutions.  
Dokl. AN SSSR 142 no.4:841-843 F '62. (MIRA 15:2)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR.  
Predstavleno akademikom B.A.Arbusovym.  
(Vanadium sulfate--Magnetic properties)

L 32665-66 EWT(m)/EWP(j)/T RM  
ACC NR: AP6015044 (A) SOURCE CODE: UR/0190/66/008/005/0787/0789

AUTHOR: Prokop'yev, V. P.; Tishkov, P.G.; Shreybert, A. I.; Khardin, A. P.

ORG: Volgograd Polytechnic Institute (Volgogradskiy politekhnicheskii institut)

TITLE: Investigation of methylmethacrylate in the presence of halonitro-  
peroxides by the spin-echo method

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 8, no. 5, 1966, 787-789

TOPIC TAGS: methylmethacrylate, polymerization, peroxide, gel, proton interaction,  
spin relaxation, spin-echo method

ABSTRACT: Investigation of methylmethacrylate polymerization in the presence of  
4-chloro-and-4-bromo-4,4-dinitrobutyryl peroxides was carried out at 50C and a  
peroxide concentration of  $3.7 \times 10^{-2}$  mol/l. Halonitroperoxides initiate the  
polymerization of methylmethacrylate without a noticeable gel effect. The nature  
of proton spin-lattice relaxation during polymerization with and without air was  
shown. Orig. art. has: 2 figures. [Based on authors' abstract] [NT]

SUB CODE: 07, 11/ SUBM DATE: 25Feb65/ ORIG REF: 002/ OTH REF: 007

Card 1/1. BLC

UDC: 66.095.26 + 678.744

55  
B

VISHNEVSKAYA, G.P.; KOZYREV, B.M.; TISHKOV, P.G.

Paramagnetic relaxation in concentrated aqueous solutions of  
(VO)<sup>2+</sup>. Dokl. AN SSSR 152 no.3:644-646 S '63. (MIRA 16:12)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i  
Kazanskiy khimiko-tekhnologicheskiy institut. Predstavleno akademikom  
B.A.Arbuzovym.

VISHNEVSKAYA, G.P.; TISHKOV, P.G.

Paramagnetic relaxation in vanadyl salt solutions. Dokl. AN SSSR  
154 no.5:1149-1152 F'64. (MIRA 17:2)

1. Fiziko-tekhnicheskiy institut Kazanskogo filiala AN SSSR i  
Kazanskiy khimiko-tekhnologicheskiy institut. Predstavleno  
akademikom A.Ye. Arbuzovym.

ACCESSION NR: AP4016513

S/0020/64/154/005/1149/1152

AUTHORS: Vishnevskaya, G.P.; Tishkov, P.G.

TITLE: Paramagnetic relaxation in vanadyl salt solutions

SOURCE: AN SSSR. Doklady\*, v. 154, no. 5, 1964, 1149-1152

TOPIC TAGS: relaxation parameter, spin lattice relaxation, spin spin relaxation, vanadyl, vanadyl solution, acid medium, vanadium complex, glycerin, ion concentration, aqueous solution, vanadyl sulphate, solid sulfate, electron relaxation, exsiccator

ABSTRACT: This investigation deals with the determination of the spin-lattice and spin-spin relaxation time of vanadyl aqueous solutions with various acid contents and glycerin additions.  $\text{VOCl}_2$  solutions with concentrations of 3 and 4 mole/liter were selected for measuring purposes, and measurements were also made in aqueous and glycerin solution of vanadyl sulfate ( $\text{VOSO}_4 \cdot 3\text{H}_2\text{O}$ ) with a concentration of about 1.5 mole/liter. Solutions with a maximum glycerin content were measured in a temperature range of 295 to 368K. It was found that the spin-lattice relaxation in aqueous-glycerin

Card 1/3

ACCESSION NR: AP4016513

solutions undergoes a greater change than in aqueous solutions alone. It is assumed that the rapid change of the spin-lattice relaxation in aqueous-glycerin solutions with temperature is due to the fact that glycerin viscosity changes rapidly with temperature in relation to water viscosity. A careful investigation has been made of solid vanadyl sulfate as well as  $\text{VOCl}_2 \cdot 5\text{H}_2\text{O}$  powder. The solid vanadyl chloride was prepared by drying a 6.5 mole/liter aqueous solution in an exsiccator with sulfuric acid. The temperature measurements made in  $\text{VOSO}_4 \cdot 3\text{H}_2\text{O}$  powder revealed that the spin-lattice relaxation time within the temperature range of 293 to 268K is not affected by the temperature, but there is a definite relationship with the temperature in a solution with the highest possible concentration ( $\sim 3$  mole/liter). "In conclusion, we take the opportunity to express our sincere gratitude to B.M. Kozyrev for his supervision and continuous assistance in the project." Orig. art. has: 1 figure and 1 table.

Card 2/3

ACCESSION NR: AP4016513

ASSOCIATION: Fiziko-tekhnicheskiy institut Kazanskogo filiala Akademii nauk SSSR  
(Physicotechnical Institute of the Kazan Branch, Academy of Sciences, SSSR);  
Kazanskiy khimiko-tekhnologicheskii institut (Kazan Chemicaltechnical  
Institute)

SUBMITTED: 08Oct63

DATE ACQ: 12Mar64

ENCL: 00

SUB CODE : CH

NO REF SOV: 009

OTHER: 003

Card 3/3



TISHKOV, Sergey Ivanovich [TSishkou, S.]; RABINOVICH, A., red.;  
KALECHITS, G. [Kalechyts, H.], tekhn.red.

[Growing corn in White Russia] Vyroshchvanne kukuruzy u BSSR.  
Minsk, Dzierzh.vyd-vs BSSR. Red.sel'skahaspadarchai lit-ry.  
1959. 101 p. (MIRA 14:4)

1. Chlen-korrespondent Akademii sel'skokhozyaystvennykh nauk  
BSSR.

(White Russia--Corn (Maize))

TISHKOV, V.M., inzh.

What experience teaches. Vest. elektroprom. 34 no.3:56 Mr '63.  
(MIRA 16:8)

1. Glavnyy energetik tresta "Vorkutdorstroy."  
(Electric motors)

PETRAKOVSKIY, A.P., inzh.; TISHKOV, Yu.Ya., inzh.; TISHCHENKO, O.I., inzh.;  
SOLODOVNIKOV, V.V., inzh.

Use of compressed air in intensifying open-hearth smelting with furnace  
operation by the scrap process. Stal' 23 no.12:1079-1082 D '63.  
(MIRA 17:2)

1. Zlatoustovskiy metallurgicheskiy zavod.

TISHCHENKO, O.I.; OKHRIMOVICH, B.P.; TISHKOV, Yu.Ya.; KULAKOV, I.I.;  
KHRUSTAL'KOV, L.A.; VASILEVSKIY, P.A.; PASYUK, K.I.

New method of building arc furnace hearths. Metallurg 8  
no.2:15-17 F '63. (MIRA 16:2)

1. Zlatoustovskiy metallurgicheskiy zavod i Chelyabinskiy  
institut ogneuporov.  
(Electric furnaces—Design and construction)

LEVENETS, N.P.; SAMARIN, A.M.; SEMIKIN, I.D.; KAZAKOV, V.E.; BEMBINEK, Ye.I.;  
PANYUKHNO, L.G.; SVINOLOBOV, N.P.; AVERIN, S.I.; SMIRNOV, V.M.;  
ZELENSKIY, V.D.; LAYKO, B.G.; TISHCHENKO, O.I.; OKHRIMOVICH, B.P.;  
DANILOV, A.M.; TISHKOV, Yu.Ya.; PANOV, M.A.; MARKELOV, A.I.;  
PETROV, A.K.; VASILEVSKIY, P.A.; PASYUK, K.I.; NESTEROV, V.I.;  
KHRUSTAL'KOV, L.A.; GLAZKOV, V.S.; MAKAGON, V.G.; FOMIN, G.G.;  
TRISHCHENKO, V.D.; KORZH, V.P.; SUYAROV, D.I.; ARSEYEV, A.V.;  
PAVLYUCHENKO, A.A.; ZHADAYEV, V.G.; KONDORSKIY, R.I.; MOROZOVA,  
I.A.; KOCHETOV, V.V.; PRUZHINER, V.L.; MALEVICH, I.A.;  
MALIOVANOV, D.I.; ZAKOVRYASHIN, I.I.; NOVSKIY, I.S.; NOVIKOVA,  
V.P.; GRISHIN, K.N.; MOSKOVSKAYA, M.L.; KORNEYEV, B.M.

Inventions. Met. 1 gornorud. prom. no.3:75-76 My-Je '64.  
(MIRA 17:10)

AUTHORS:

Okhrimovich, B. P., Tishkov, Yu. Ya., Lomilevskiy, P. A.,  
Pasyuk, K. I.

TITLE:

New ramming method for hearths of steel furnaces

PERIODICAL:

Ogneupory, No. 2, 1962, 61-65

TEXT: Results of experimental and industrial research are given and suggestions are made for repairing rammed bottoms of open hearths and electric steel furnaces by dry magnesite powder. The parameters suited best for the production of rammed hearths of maximum durability were determined in the laboratory. Powdered magnesite of the zavod "Magnezit" ("Magnezit" Plant) was used to study the effects of the grain composition of magnesite powder, thickness of the rammed layer, ramming time and techniques, binding agents, sintering additives, and powder humidity. Since July 1960, experiments of repairing hearths in cold state by pneumatic ramming of dry magnesite powder have been conducted in the steel works of the Zlatoustovskiy metallurgicheskiy zavod (Zlatoust foundry). For repairing hearths in hot state, МПМ (МРМ) or МПК (МРК) powders are

Page 1/2  
APPROVED FOR RELEASE: 07/16/2001

New ramming method for hearths ...

S/131/52/000/002/002/004  
B105/1 31

molten on to the walls and vaults. To increase the durability of hearths of steel furnaces especially when melting high-quality steels, the former are produced by ramming dry magnesite powder with a minimum content of 88%  $MgO$ . The greatest density of the working layer of hearths is obtained by using magnesite powders with a 65-75% content of the 0-0.1 mm fraction, 35-25% of a fraction < 0.1 mm including 25-15% < 0.06 mm. To improve the hearth density without a considerable reduction in refractoriness, up to 5% of titanomagnetite concentrate is added. Ramming and repairing hearths with dry magnesite powder increases their durability considerably and reduces the time of waiting and the consumption of magnesite powder and fuels. To promote the application of the new technique, the production of magnesite powder of the required grain composition will have to be applied, in the "Magnezit" plant. There are 3 tables and 3 Soviet references.

ASSOCIATION: Zlatoustovskiy metallurgicheskiy zavod (Zlatoust Foundry)  
(Okhrimovich, B. P., Tishkov, Yu. Ya.); Institut  
ogneuporov v. g. Satke (Institute of Refractories in Satka)  
(Vasilevskiy, P. A., Pasyuk, K. I.)

Card 2/2

TSAREGORODTSEV, P.P.; IZOTOV, N.P.; TISHKOV, Yu.Ya.

Reduction of idle periods in the maintenance of hearths. Metallurg  
9 no.11:15 N '64. (MIRA 18:2)



TISHKOV, Yu.Ya.; KREST'YANINOV, V.F.; VASILEVSKIY, P.A.

Rammed hearth of a 190-ton furnace. Metallurg 8 no.5:13-15  
My '63. (MIRA 16:7)

(Open-hearth furnaces---Maintenance and repair)

**TISHKOVA, B.N.**

**CA DETERMINATION OF THE SPECIFIC GRAVITY OF OILS BY THE METHOD OF A "SUSPENDED DROP".** P.S. Panyutin and B.N. Tishkova. Neftyanoe Khoz. 1936, No. 8, 55-6.- Alc.- H<sub>2</sub>O solns. of various densities are prepd., and a drop of oil under onvestigation is placed on each of the alc. solns. until the drop of oil stays on the surface of one and sinks slightly on the other soln. Then to the lighter soln. so much of the heavier alc. soln. is added that the drop of oil remains on suspension. The expts. are carried out at 20°. The sp. gr. of the final alc. solns. and therefore of the oil is detd. from  $x = (ab + cd \cdot 100) / (ac + cg)$ , where a is the amt. of the first mixt. used on the filtration, b the amt of the second, c the sp. gr. of the first and g that of the second mixt. A conversion homogram is given. A.A. Boeshlingk

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ASME-5LA METALLURGICAL LITERATURE CLASSIFICATION

6-2

IL'INA, N.V.; SOKHATSKAYA, G.A.; SHADRINA, M.N.; TISHKOVA, K.S.

Durability of lining of rotary kilns in 1962. TSement 29  
no.5:9-11 S-O '63. (MIRA 16:11)

1. Gosudarstvennyy vesesoyuznyy institut po proyektirovaniyu  
i nauchno-issledovatel'skim rabotam tsementnoy promyshlen-  
nosti i Vsesoyuznyy gosudarstvennyy nauchno-issledovatel'-  
skiy institut tsementnoy promyshlennosti.

IL'INA, N.V.; SOKHATSKAYA, G.A.; SHADRINA, M.N.; TISHKOVA, K.S.

Analysis of the stability of linings of rotary kilns. Tsement 28 no.6:  
16-17 N-D '62. (MIRA 15:12)

1. Gosudarstvennyy institut po proyektirovaniyu predpriyatiy i nauchno-issledovatel'skim rabotam tsementnoy promyshlennosti i Gosudarstvennyy vsesoyuznyy nauchno-issledovatel'skiy institut tsementnoy promyshlennosti.  
(Kilns, Rotary) (Refractory materials)

TISHKOVA, I.D.

Effect of pentoxyl on the healing of penetrating linear wounds of the cornea; an experimental study. Sbor. nauch. trud. SCGMI no.14:108-113 '63.  
(MIRA 18:9)

1. Iz kafedry glaznykh bolezney (ispolnyayushchiy obyazannosti zaveduyushchego - dotsent D.I. Zatsepin) i iz kafedry gistologii i embriologii (zav.~ dotsent med. nauk A.A. Kolosova) Rostovskogo meditsinskogo instituta.

TISHKOVA, L.D., ordinator.

~~Eye injuries among agricultural machinery operators in the Rostov~~  
Province. Oft. zhur. 13 no.6:348-351 '58. (MIRA 12:1)

1. Iz glaznoy kliniki imeni K. Kh. Orlova (zav. - zaslužhennyy deyatel'  
nauki prof. P.F. Arkhangel'skiy) Rostovskogo meditsinskogo instituta.  
(~~EYE--WOUNDS AND INJURIES~~)  
(~~ROSTOV PROVINCE--AGRICULTURAL LABORERS--DISEASES AND HYGIENE~~)

10

22

Determination of ash in lubricating oils. P. S. Panyutin and V. N. Tishkova. *Neftyanoe Khas.* 1936, No. 8, 54-5. Thirty cc. of the oil is dehydrated, freed from much admixts., and put in a weighed Wurtz flask. The flask is then weighed with the oil and connected with a reflux condenser provided with an adaptor (10 cc.) and the system is connected to a vacuum pump. The low-boiling fraction is distd. at 1.5-5 mm. until 70-80%, depending on the kind of oil; the distillate is collected in the adaptor. The ash detn. is then carried out in two ways: (1) The flask is weighed and, after warming, 2-3 g. of the residue is transferred to a weighed porcelain dish (20-25 cc.), cooled and weighed with the dish. The detn. is then continued in the usual manner and the percentage of ash is calcd. from  $\text{ash} = (ab/cd)100$ , where  $a$  is the wt. of the ash in g.,  $b$  that of the residue,  $c$  that of the sample and  $d$  that of the residue transferred to the dish. (2) The residue in the flask is dissolved in 5 cc.  $\text{C}_2\text{H}_6$  and transferred to the porcelain dish; the flask is washed with 5-cc. portions of  $\text{C}_2\text{H}_6$ . The contents of the dish are then evapd., ignited, weighed and the percentage of ash is detd. from  $\text{ash} = (a/b)100$ , where  $b$  is the wt. of the sample.

A. A. Podgorny

ASH 31.4 METALLURGICAL LITERATURE CLASSIFICATION

COMMON ELEMENTS		PROCESSES AND PROPERTIES INDEX	
1ST AND 2ND ORDERS		3RD AND 4TH ORDERS	
<p><b>F</b> 4666. DETERMINATION OF THE LOW TEMPERATURE VISCOSITY OF LUBRICANTS FOR WAGON AXLES. Blidchenko, IF, and Tishkova, VM (Symp. Visc. Liquids and Colloids, Acad. Sci. U.S.S.R., 1944, 2, 167-172; J. Inst. Petrol. 1945, 31, 327A) Various lubricating mixtures, either wholly distillates or else distillate/residue blends, and all having a viscosity of <math>2 \pm 0.2</math> E., at 50 °C., were examined with respect to their viscosities at 50 °C. as the low viscosity components there were used gas oils with viscosities of 1.24-1.84 E. at 50 °C. Viscosities were measured in a modified Ubbelohde-Holde tube; all oils were preheated at 50 °C. for 10 min. Results at 50 °C. for viscosities in the range 800-8000 poises show a repeatability of about 2%. Crudes from various fields were used to provide the components. It is concluded that the most favourable viscosity temperature relationship is given by a blend of a light Bihi Sibat gas oil with a low viscosity (10 E. at 50 °C.) residual fuel. Such blends, and those incorporating bitumens, have viscosities at -50 °C. of 800-16000 poises, as compared to values of 2400</p>			
<p>ASM-A METALLURGICAL LITERATURE CLASSIFICATION</p>			
<p>REGION 1</p>		<p>REGION 2</p>	
<p>GROUP 1</p>		<p>GROUP 2</p>	
<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>		<p>1 2 3 4 5 6 7 8 9 10 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100</p>	



poises, as compared to values of 2400 poises for the lubricants in current use. The satisfactory performance of such lubricants was verified in a friction machine operating at -50 C. and by actual trials in winter (-53 C.) conditions. ..

CA

PROCESSED AND PREPARED BY

**Determination of low-temperature viscosity of greases for railway-car axles.** I. P. Blizhenko and V. N. Tishkova  
*Zhurnal. Nauk S.S.S.R., Otdel. Tekh. Nauk, Inst. Mashinostroyeniya, Sovetskoye Vysokoye Zhidkosti i Kollod. Raznosye (Conf. on Viscosity of Liquids and Colloidal Solns) 2, 107-122 (1944).* Data were made from 10 to 50 in an Ubbelohde viscometer, for oil of 100, 200, 300, 400, 500, 600, 700, 800, 900, 1000 poises, the 10 column pressures used were 100-150, 200-300, 400-500 mm, resp. the diam. of the capillary 2, 3, 4 mm., resp. All oils were previously heated to 50° for 10 min. prior to testing. Ten different samples of mixts. of mazout and solar and of tar and solar of various domestic origins, with  $\eta_{sp}$  between .55 and .50, were investigated. Low freezing lubricant are made by using as the low-viscosity component preferably light solar distillates of Baku paraffin-free petroleum, for the viscous component mazout of  $E_{50} = 10.2$  and tar are preferred. Such mixts. show at -50° from 817 to 1050 poises and freeze at about -58°. The suitability of these lubricants was confirmed in expts. on a friction machine and in service on Siberian railroads. N. Thon

AS & SEA METEOROLOGICAL LITERATURE CLASSIFICATION

100 11 12 13 14 15 16 17 18 19 20 21 22 23 24 25 26 27 28 29 30 31 32 33 34 35 36 37 38 39 40 41 42 43 44 45 46 47 48 49 50 51 52 53 54 55 56 57 58 59 60 61 62 63 64 65 66 67 68 69 70 71 72 73 74 75 76 77 78 79 80 81 82 83 84 85 86 87 88 89 90 91 92 93 94 95 96 97 98 99 100

**"APPROVED FOR RELEASE: 07/16/2001**

**CIA-RDP86-00513R001755820005-8**

**APPROVED FOR RELEASE: 07/16/2001**

**CIA-RDP86-00513R001755820005-8"**

IL'INA, N.V., kand.tekhn.nauk; SOKHATSKAYA, G.A., kand.tekhn.nauk; SHADRINA,  
M.N., inzh.; TISHKOVA, K.S., inzh.

Durability of brick linings in rotary kilns. TSement 30 no.6:9-11  
N-D '64. (MIRA 18v1)

5.3620

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 7, p 204 (USSR)

AUTHORS: Isagulyants, V.I., Tishkova, V.N.

TITLE: The Synthesis of Some Derivatives of Alkylated Phenols

PERIODICAL: V sb.: Khim. pererabotka nef. uglevodorodov. Moscow, AS USSR, 1956, pp 474 - 478

ABSTRACT:

The interaction of  $S_2Cl_2$  and  $SCl_2$  in  $n-RC_6H_4OH$  (I), where everywhere a R = tertiary- $C_4H_9$ , 6 R = tertiary- $C_8H_{17}$ , was studied, and methods for obtaining sulfides, di- and polysulfides were developed according to the reactions:  $2I + SCl_2 \rightarrow Ar_2S$  (II) (where everywhere  $Ar-2-OH-5-RC_6H_3$ ) +  $2HCl$ ;  $2I + S_2Cl_2 \rightarrow (ArS)_2$  (III) +  $2HCl$ ;  $3I + 2SCl_2 \rightarrow 2,6-(ArS)_2-4-RC_6H_2OH$  (IV) +  $4HCl$ . It was shown that the formation of III and IV of various molecular weight depends on the quantity of initial  $S_2Cl_2$  or  $SCl_2$ . To 0.2 mole of Ia in 150 ml of absolute  $C_6H_6$  within 45 min (25 - 45°C) 0.1 mole of  $SCl_2$  is added, it is heated on the water bath for 1 hour, the reaction product is washed by a 5%-solution of

VED FOR RELEASE: 07/16/2001

80311  
SOV/81-59-7-23343

# The Synthesis of Some Derivatives of Alkylated Phenols

$Na_2CO_3$ , the solvent is distilled off in the vacuum, and II a is extracted by  $C_6H_6$ , yield 97%. In an analogous way from 41.2 g Ib in 62 ml  $C_6H_6$  and 10.3 g  $SCl_2$ , 43 g II b is obtained. To 30 g of I a in 150 ml  $C_6H_6$  at 20 - 45°C gradually 13.5 g  $S_2Cl_2$  is added and by a method analogous to that described above 36 g III a is separated. In the same way from 0.2 mole Ib in 62 ml  $C_6H_6$  and 0.1 mole  $S_2Cl_2$  97% III b is obtained. IV a is obtained with a yield of 99% by interaction of 0.15 mole I a in 112 ml  $C_6H_6$  with 0.1 mole  $SCl_2$ . From 22.5 g I a in 112.5 ml  $C_6H_6$  and 13.5 g  $S_2Cl_2$  28.5 g V a (solid transparent mass) was obtained. 30.9 g I b in 47 ml  $C_6H_6$  and 13.5 g  $S_2Cl_2$  produces 36 g V b. From 37.5 g I a in 150 ml  $C_6H_6$  and 20.6 g  $SCl_2$  42 g 2,6-(3-ArS-2-OH-5- $-C_4H_9C_6H_2S$ ) $_2$ -4- $C_4H_9C_6H_2OH$  (VI a) was obtained; when VI a is rubbed an amorphous powder is obtained. To 0.15 mole  $n-HOC_6H_4C(C_6H_5)(CH_3)_2$  (VII) in 50 ml  $C_6H_6$  0.1 mole  $SCl_2$  was added and after processing of the reaction mixture the sulfite of VII 2,6-(Ar'S) $_2$ -4-( $C_6H_5$ )( $CH_3$ ) $_2CC_6H_2OH$  was separated [where  $Ar' = 2-OH = 5-C(C_6H_5)(CH_3)_2C_6H_3$ ] in the form of a very viscous liquid freezing to a hard mass at 0°C.

ISAGULYANTS, V.I.; TISHKOVA, V.N.; FAVORSKAYA, N.A.; OGANESEYAN, R.O.

Substituted hindered phenols and their use as antioxidants for  
petroleum products. Trudy MNI no.23:42-61 '58. (MIRA 12:1)  
(Phenols) (Alkylation) (Petroleum products--Additives)

ISAGULYANTS, V.I.; TISHKOVA, V.H.; PAPOK, K.K.; ZUSEVA, B.S.

Research in the field of the synthesis of additives for  
petroleum products. Report No.1: Synthesis of phenolates of  
sulfides and disulfides of substituted phenols. Trudy MNI  
no.23:31-41 '58. (MIRA 12:1)  
(Phenoxides) (Petroleum products--Additives)

ISAGULYANTS, V.I.; TISHKOVA, V.N.; PAPOK, K.K.; ZUSEVA, B.S.

Synthesis of phenolates of sulfides and disulfides of substituted phenols. Izv.vys.ucheb.zav.; neft' i gaz 1 no.11:97-103 '58.  
(MIRA 12:5)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti  
im. akad. I.M.Gubkina.  
(Phenoxides)



SOV/81-59-16-58532

Translation from: Referativnyy zhurnal. Khimiya, 1959, Nr 16, p 414 (USSR)

AUTHORS: Isagulyants, V.I., Tishkova, V.N., Papok, K.K., Zuseva, V.S.

TITLE: Investigation in the Field of the Synthesis of Admixtures to Petroleum Products. Communication I. The Synthesis of Phenolates of Sulfides and Disulfides of Substituted Phenols

PERIODICAL: Tr. Vses. n.-i. in-t po pererabotke nefli i gaza i polucheniyu iskusstv. zhirk. topliva, 1958, Nr 7, pp 378-389

ABSTRACT: With the aim of studying the synthesis of phenolates of sulfides and disulfides of various substituted phenols and the effect of the composition and the structure on their properties as admixtures to lubricants, the authors synthesized and investigated several alkylphenolates containing various quantities of S in the molecule, various alkyl radicals and various metals. It has been found that the solubility of the phenolates depends on the nature of the substituting radical and increases with an increase in the length of the side chain in the aromatic ring. Phenolates with a long chain of  $C_{14}$  or containing an aralkyl radical do not dissolve

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Investigation in the Field of the Synthesis of Admixtures to Petroleum Products. Communication I. The Synthesis of Phenolates of Sulfides and Disulfides of Substituted Phenols

in mineral oil. The most efficient admixtures are phenolates of alkali or alkali earth metals. An increase in the amount of S up to 13 - 15% improves the antioxidation properties of the phenolates. The most active admixtures are phenolates containing a tertiary alkyl radical with 8 - 10 carbon atoms. The initial substituted phenolates for the preparation of efficient admixtures should be substituted phenols obtained in the alkylation of phenol by isoolefines, but not by chlorinated paraffin.

S. Rozenfel'd.

Card 2/2

TISHKOVH, V. N.

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НАУЧНЫЕ ОСНОВЫ СИНТЕЗА АЛКИЛ  
И АРИЛФЕНИЛЬНЫХ ПРИСАДОК К МИНЕРАЛЬНЫМ  
МАСЛАМ И МОТОРНЫМ ТОПЛИВАМ  
В. Н. ТИШКОВ, В. Н. ТАМАСОВ

VIII Mendeleev Congress for General and Applied Chemistry in  
Section of Chemistry and Chemical Technology of Fuels,  
publ. by Acad. Sci. USSR, Moscow 1979

abstracts of reports scheduled to be presented at above mentioned congress,  
Moscow, 15 March 1979.

ISAGULIANTS, V.I. (Leningrad); TISHKOVA, V.N. (Leningrad); FAVORSKAIA, N.A.  
(Leningrad); OGANESIAN, R.O. (Leningrad)

Substituted shaded phenols and their use as antioxidant additives  
of mineral oil products. Tr. from the Russian. Kem.tud.kozl.MTA 12  
no.4:363-381 '59. (ERAI 9:4)

1. Leningradi Tudományegyetem.  
(Phenols) (Mineral oils)

0650

S/081/61/000/020/085/089

B110/B147

11.0170 (also 3019)

AUTHORS: Isagulyants, V. I., Tishkova, V. N., Favorskaya, N. A.

TITLE: Synthesis of mineral-oil and motor-fuel additives on the basis of substituted phenols

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 410-411, abstract 20M160 ([Tr.] Groznensk. neft. in-t, sb. 23, 1960, 132-136)

TEXT: Schemes for the synthesis of multifunctional additives of the following types are given: metallic salts of sulfides and disulfides of alkyl phenols; metallic salts of diether dithiophosphoric acids, whose ether groups were obtained from disulfides of alkyl phenols; dialkyl amino salts of diether dithiophosphoric acids, whose ether groups were obtained from disulfides of alkyl phenols; Ca and Ba phenolates obtained by chloromethylation of the condensation products of alkyl phenols with  $\text{CH}_2\text{O}$ , by reaction of the chloromethylated products with metallic salts of diether dithiophosphoric acids, and by subsequent treatment with  $\text{Ca}(\text{OH})_2$

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30650

Synthesis of mineral-oil and...

S/081/61/000/020/085/089  
B110/B147

or  $\text{Ba}(\text{OH})_2$ . A new method was worked out for synthesizing the oxidation-inhibiting additive 2,6-di-tert-butyl-4-methyl phenol (I) by alkylation of dicresol (mixture of p-cresols and m-cresols) with the butane-butylene fraction in the presence of  $\text{H}_2\text{SO}_4$ . By treatment with aqueous alkali in the presence of a solvent, the alkylate is separated into a solution of I in the solvent and into an aqueous alkaline solution which contains other alkylation products of dicresol. The periods for which ethylated gasoline with an addition of I and some of its synthesized homologs remain stable are indicated. [Abstracter's note: Complete translation.]

Card 2/2

S/081/61/000/G20/075/089  
B106/B147

AUTHORS: Isagulyants, V. I., Tishkova, V. N., Ivanov, S. K.

TITLE: Ionites and their use in catalytic synthesis

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 20, 1961, 321, abstract  
20L45 ([Tr.] Groznensk. neft. in-t, sb. 23, 1960, 137-145)

TEXT: The alkylation reaction of phenol with a fraction of polymer gasoline in the presence of cationite KY-2 (KU-2) was investigated under static conditions and according to a continuous system. The dependence of the phenol conversion rate on the temperature and reaction time was determined. [Abstracter's note: Complete translation.]

Card 1/1

24550

S/081/62/000/006/086/117  
B167/B101

11.9700

AUTHORS: Tishkova, V. N., Isagulyants, V. I., Chang Hsiu-cheng,  
Utamiyeva, N. M.

TITLE: Synthesis of diether dithiophosphoric acids and their  
derivatives on the basis of substituted phenols. Use of  
these materials as additives to petroleum products

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 6, 1962, 541, abstract  
64259 (Sb. "Prisadki k maslam i toplivam". M.,  
Gostoptekhizdat, 1961, 34-48)

TEXT: Starting with diether dithiophosphoric acids (I), prepared from  
 $P_2S_5$  and alkyl phenols in toluene solution, 35 compounds have been  
synthesized and studied as possible anti-oxidant and wetting additives to  
motor oils. Their anti-oxidant action was studied in a solution of  
mineral oil MF-16 (MT-16) by the thermal oxidation stability  
ГОСТ 4953-49 (GOST 4953-49) and vaporizability ГОСТ 5737-53 (GOST 5737-53)  
methods; their wetting power was measured on a ПЗВ (PZV) apparatus. The  
Ca salts of I, the I of which was prepared by the reaction of  $P_2S_5$  with  
Card 1/3



Synthesis of diether dithiophosphoric ... S/081/62/000/006/086/117 -  
B167/B101

mono-alkyl phenol disulfides or with mono-alkyl phenols (alkyls: tert-C<sub>4</sub>H<sub>9</sub>, tert-C<sub>5</sub>H<sub>11</sub>, and tert-C<sub>8</sub>H<sub>17</sub>), had both anti-oxidant and wetting properties, but the basic Ca salts had a stronger wetting action and a weaker anti-oxidant action than the neutral Ca salts, which were powerful anti-oxidant but indifferent wetting agents. The most attractive additive is the basic Ca salt of I prepared from the disulfide of tert-octyl phenol (the multifunctional additive III-22k (IP-22k)) and also the neutral Ca salt of the same I (the anti-oxidant additive AII-22k (AN-22k)). The Ba salts differed little in activity from the Ca salts, but the Zn salts had a high anti-oxidant and a poor wetting action. The strongest anti-oxidant effect was observed with the Zn salt of I prepared from tert-octyl phenol, bis-tert-octyl phenol with a methylene bridge, or bis-tert-octyl phenol with a disulfide bridge. By neutralizing I with organic bases ( $\alpha$ -methyl stearylamine, octadecylamine, guanidine, and the diamide of sebacic acid) ash-free additives were prepared. The neutralization was carried out in a benzene medium at 40°C (amines) or 160°C (diamide). These ashless additives had no wetting action, but were good anti-oxidants, especially the guanidine salt of I prepared from octyl phenol disulfide. The esters of I, prepared from 1 mole of I and 1 mole of propylene oxide, also had

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Synthesis of diether dithiophosphoric ...

S/081/62/000/006/086/117  
B167/B101

no wetting action but were good anti-oxidants, and were furthermore effective stabilizers for oil solutions of other additives. A group of compounds of the type 2,2-methylene-bis(methyl-4-tert-octyl phenol 6-dialkyl dithiophosphate) phenolate was prepared by condensing a chloromethylated alkyl phenol or its disulfide with the sodium salt of I (1.5-3 hours' heating at 70-80° in ethanol solution, followed by neutralization of the condensation product with Ba(OH<sub>2</sub>)). Ethers of diamidodithiophosphates were prepared by the reaction of P<sub>2</sub>S<sub>5</sub> with 4-RC<sub>6</sub>H<sub>4</sub>OP(NH<sub>2</sub>)<sub>2</sub> (in kerosene solution, 2 hours at 179-185°); neutralization with Ba(OH)<sub>2</sub> affords 4-RC<sub>6</sub>H<sub>4</sub>OPNHP(S)(SH)NH. Compounds of the last two groups were similar in properties to the Ca and Ba salts of I.  
[Abstracter's note: Complete translation.]

Card 3/3

X

82959

S/065/60/000/004/003/017  
E071/E435

15.6400

AUTHORS: Isagulyants, V.I., Tishkova, V.N. and Grushevenko, I.A.

TITLE: Production of Synthetic Lubricating Oils of the Type of Polyglycol Esters 7

PERIODICAL: Khimiya i tekhnologiya topliv i masel, 1960, <sup>5</sup>/<sub>1</sub> No.4, pp.8-13

TEXT: A systematic investigation of condensation reaction of propylene oxide with phenols, substituted phenols (butyl and actylphenols) and alcohols (propyl, isopropyl, isoamyl, heptyl, octyl and 2-ethylhexanol) was carried out in order to produce synthetic lubricating oils (polyglycol esters) and to test their low temperature properties. Altogether 39 specimens of synthetic oils were prepared. The physico-chemical properties of polyglycol esters based on propylene and phenols are given in Table 1, of those based on propylene and alcohols produced at atmospheric pressure are given in Table 2 and of those produced in an autoclave are given in Table 3. The experimental procedure is described in some detail. In respect of polyglycol esters based on phenols, the following relationships were found:

1. With increasing number of propylene groups in the molecule the

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82959

S/065/60/000/004/003/017  
E071/E435

Production of Synthetic Lubricating Oils of the Type of Polyglycol Esters

viscosity of polyglycol ester increases and its solidification temperature decreases.

2. With increasing molecular weight of the starting substituted phenol, the viscosity of the oil produced increases but its temperature-viscosity properties somewhat deteriorate.

3. Condensation of propylene oxide with phenol takes place easier than with a substituted phenol.

In respect of esters based on alcohols the following relationships were found:

1. The viscosity of a polyglycol ester increases with increasing amount of propylene oxide added to the alcohol.

2. With increasing viscosity of polyglycol esters, their solidification temperature also increases as well as the ratio of  $\sqrt{50}/\sqrt{100}$ . ✓

3. With increasing number of carbon atoms in the molecule of alcohol, the absolute value of the viscosity and solidification temperature of the polyglycol ester increases. The value of the ratio of  $\sqrt{50}/\sqrt{100}$  remains practically unchanged.

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E071/E435

Production of Synthetic Lubricating Oils of the Type of Polyglycol Esters

4. Polyglycolic esters produced from normal alcohols possess a higher solidification temperature than those produced from corresponding iso alcohols. Polyglycolic ester from experiment 13 was submitted to oxidation by air according to the VTI method, whereupon its resistance to oxidation was established. It was found that polyglycol esters based on propylene oxide and alcohols possess better low temperature properties than those based on phenols. By varying the ratio of starting components (propylene oxide and alcohol) polyglycol esters of various viscosity and good low temperature properties can be obtained. It was also shown that alcohols produced at present on an industrial scale (isopropyl) can be utilized for the purpose. There are 3 figures, 3 tables and 9 references; 3 Soviet and 6 English.

ASSOCIATION: MINKh i GP im. Gubkina  
(MINKh and GP imeni Gubkin)

Card 3/3

S/061/62/000/008/044/057  
B156/B101

11 9'000  
AUTHORS:

Isagulyants, V. I., Tishkova, V. N., Yemel'yanova, L. M.,  
Grushevenko, I. A.

TITLE:

The synthesis and properties of polyglycol ethers and their  
use as components of synthetic oils and additives

PERIODICAL:

Referativnyy zhurnal. Khimiya, no. 8, 1962, 484, abstract  
UM214 (Sb. "Prisadki k maslam i toplivam". M.,  
Gostoptekhnizdat, 1961, 115-121)

TEXT: A number of polyglycol ethers (I) were synthesized by the condensa-  
tion of phenols and alcohols containing different molecular amounts of  
propylene oxide (II) in the presence of NaOH (1% of the raw material) as  
catalyst. The I were produced by the condensation of phenol with (in  
moles of II per mole of phenol or alcohol) 1,2,3,4,5 and 15 of II, tert-  
butyl phenol with 15 of II, tert-octyl phenol with 10 II, n-propanol with  
8 II, iso-propanol with 4.8 and 16 II, iso-amyl alcohol with 1,2,2.86  
and 8 II, heptanol with 2 and 4 II, octanol with 4 and 6 II, and  
2-ethylhexanol with 8 II. The boiling points  $n_{20}^D$ ,  $d_{20}^{20}$ , gel points and

Card 1/2

APPROVED

The synthesis and properties ...

S/081/62/000/008/044/057  
B156/B101

viscosities at different temperatures are given for the I produced. Increasing the number of II groups in the I increases the viscosity of the I. The I produced on an alcohol base (gel points between -52 and -60°C) had better low-temperature properties than the phenol-base I (gel points between -28 and -43°C). The authors consider that it will be effective to add certain of the I to the compositions of additives for lubricating oils to improve their dispersing and cleansing properties. [Abstracter's note: Complete translation.]

B

Card 2/2

ISAGULYANTS, V.I.; FAVORSKAYA, N.A.; TISHKOVA, V.N.

Synthesis of 2, 6-di-tert-butyl-4-methylphenol. Zhur.prikl.khim.  
34 no.3:693-694 Mr '61. (MIRA 14:5)  
(Cresol)



TOPIC TAGS: dihydroxybenzene, divalent phenol, resorcinol, phenol alkylation, cation exchange resin, exchange resin catalyst, hydroquinone, catechol, anti-

ABSTRACT: The authors used the cation-exchange resin KU-2<sup>1</sup> as a catalyst<sup>1</sup> for the alkylation of divalent phenols in benzene. The optimum conditions for the alkylation are:

1. hydroquinone with isobutylene, both monomers are substituted derivatives or their mixture are formed, depending upon the conditions this is explained by the

Z 14189-65

ACCESSION NP- AT500-94.1

presence of hydroxyl groups in the data ... of the anti-oxidant  
properties of di-tert-butylhydroquinone ... the latter was added  
in the amount of 0.2% ... the  
... ..

ASSOCIATION ... ..

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TISHKOVA, V.N.; ISAGULYANTS, V.I.; PAFOK, R.K.; ZUSEVA, B.S.

Synthesizing a new antioxiidizing additive to lubricating oils  
for forced working engines. Trudy MINKHIGP no.44:105-109 '63.  
(MIRA 18:5)

ISAGULYANTS, V.I.; TISHKOVA, V.N.; BOLOTOVA, G.I.; FIDICHENKO, S.N.

Synthesis of substituted diatomic phenols of tertiary butylpyro-  
catechol, tertiary butylhydroquinone, and tertiary butylresorcinol.  
Zhur. prikl. khim. 37 no.12:2729-2733 D '64.

(R11A 18:3)

ISAGULYANTS, V.I.; TISHKOVA, V.N.; CHZHAN SYU-CHZHEN [Chang Hsiu-cheng]

Synthesis of new multifunctional additives on a base of text-  
amylphenol. Trudy MINKHiGP no.37:116-125 '62. (MIRA 17:3)

ISZAGULJANC, V.M. [Isagulyants, V.I.]; TISKOVA, V.N. [Tishkova, V.N.]  
GRUSEVENKO, I.A. [Grushevenko, I.A.]; FEJER, Domonkosné [Translator]

Preparing polyglycolether-type synthetic lubricants.  
Kem tud kozl MTA 20 no.1:33-39 '63.

1. Leningradi Tudomanyegyetem (for Tishkova, Grushevenko).
2. Ormeny Tanacskozarsasag Tudomanyos Akademiajanak rendes tagja (for Iszaguljanc.).

ISAGULYANTS, V.I.; TISHKOVA, V.N.; AMAR, Sh.; BYL'CHINSKAYA, M.

Production of synthetic lubricating oils of the type of mono- and dicarboxylic acid esters. Khim.i tekhn.topl.i masel 8 no.2:15-20  
F '63. (MIRA 16:10)

1. Moskovskiy institut neftekhimicheskoy i gazovoy promyshlennosti  
i/ akademiya Gubkina.

ACCESSION NR: AT4008702

S/2982/63/000/044/0105/0109

AUTHOR: Tishkova, V. N.; Isagulyants, V. I.; Papok, K. K.; Zuseva, B. S.

TITLE: Synthesis of a new antioxidative fuel oil additive for engines operating under a loading

SOURCE: Moscow. Institut neftekhimicheskoy i gazovoy promy\*shlennosti. Trudy\*, no. 44, 1963. Neftekhimiya, pererabotka nefi i gaza, 105-109

TOPIC TAGS: lubricating oil, EP, extreme pressure, extreme pressure lubricant, antioxidant, lube oil additive, detergent additive, phosphorodithioic acid. diester-. calcium salt, dithiophosphoric acid. diester-. calcium salt, AN-22K additive, phosphorodithioic acid. octylphenol diester, octylphenol, SB-3 detergent additive, detergent oil, detergent lubricating oil, lubricating oil detergent

ABSTRACT: The authors synthesized lube oil additive AN-22K, a neutral calcium salt of the dioctylphenyl ester of dithiophosphoric acid, in four stages: 1) alkylation of phenol with diisobutylene in the presence of the cationic reagent KU-2; 2) preparation of octylphenol disulfide by reaction of octylphenol with sulfur monochloride; 3) preparation of the diester of dithiophosphoric acid by reaction of the octylphenol disulfide with phosphorus pentasulfide; 4) neutralization of the acid obtained by calcium hydroxide. The additive is a solid of

Card 1/2



ACCESSION NR: AT4008702

cinnamon coloration, becoming yellow when powdered, and has a mol. weight of 1200. It was tested with lube oil MT-16. It produced the best results when used as a composition additive in a 1:2 mixture with the sulfonate additive SB-3 and exceeded the performance characteristics of the phosphorus-containing additives MN 1-IP-22k and vniinp-360. Orig. art. has: 2 tables and 1 illustration.

ASSOCIATION: Institut neftekhimicheskoy i gazovoy promyshlennosti, Moscow  
(Institute for petroleum chemistry and the gas industry)

SUBMITTED: 00

DATE ACQ: 16Jan64

ENCL: 00

SUB CODE: FL

NO REF SOV: .004

OTHER: 001

Card 2/2

S/065/63/000/002/001/008  
EO75/E436

AUTHORS: Isagulyants, V.I., Tishkova, V.N., Amar, Sh.,  
Byl'chinskaya, M.

TITLE: Preparation of synthetic lubricating oils of the type  
of complex esters of mono- and dicarboxylic acids

PERIODICAL: Khimiya i tekhnologiya topliv i masel, no.2, 1963,  
15-20

TEXT: Adipic and sebacic acids were esterified at 120 to 140°C with isoamyl-n-hexyl, n-heptyl, n-octyl, 2-ethylhexyl, n-nonyl, and n-decyl alcohols, using cation exchanger KY-2 (KU-2) as catalyst (16% wt of the acids). Anion-exchanger AB-17 (AV-17) was used after the esterification to remove residual acids from the esters. To minimize the formation of acid esters (half esters) an excess of the alcohols (25 to 50% theoretical) was used. An ester of technical C<sub>5</sub>-C<sub>6</sub> fatty acids with pentaerythritol was also prepared. The yields for all the esters ranged from 92.5 to 99.3%. Di-2-ethylhexylsebacate, di-2-ethylhexyladipate and diisoamyladipate had setting points of less than -60°C and may be suitable as components of synthetic lubricating oils. Di-2-ethylhexylsebacate and the pentaerythritol ester are the most

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S/065/63/000/002/001/008  
E075/E436

Preparation of synthetic ...

promising esters for practical applications (viscosity at 100°C: 3.20 and 4.32 cst respectively; setting points: -60 and -65°C respectively; viscosity indices: 155 and 138 respectively). The use of ion exchangers as esterification catalysts presents many advantages over catalysts such as ZnO and H<sub>2</sub>SO<sub>4</sub>. The advantages are: relatively low esterification temperature, high yields, possibility of using continuous esterification processes, ease of separation of the catalyst from the products. The catalyst can be used several times and can be regenerated easily. There are 3 tables.

ASSOCIATIONS: MINKh and GP imeni Gubkin

Card 2/2

ALESHINA, L.I., inzh.; TISHKOVA, V.S.; GURVICH, N.L.

Methods for determining the essential oil content of eugenol  
basil. Masl.-zhir. prom. 27 no.7:34-36 J1 '61.

(IRA 14:7)

1. Tsentral'naya khimicheskaya laboratoriya Upravleniya pishchevoy  
promyshlennosti Krasnodarskogo soyuznogo (for Aleshina).
2. Matyrbovskiy ofiramaslichnyy ~~sovetskoy~~ "Elit" (for  
Tishkova). 3. Krasnodarskiy ofiramaslichnyy sovhoz-zavod  
(for Gurvich).

(Essences and essential oils)  
(Basil(Botany))